

5-6 secondaries (or tertiaries) had apparently completed growth much earlier and were faded to some extent but strong. This suggested that the tertiaries had moulted at a different time.

The greater upper coverts of the remiges had either recently completed growth or were in the final stages of growth, so were the upper lesser wing-coverts and the upper tail-coverts. The upper median wing-coverts were old. All the body tracts of feathers had fresh feathers suggesting a recently completed moult.

The overall pattern of moult of flight feathers suggested a gradual exchange of flight feathers without impairing flight completely at any point. This is important for the survival of the bird as it spends most of its time in the air. Renewal of the upper greater wing-coverts in advance of the moult of remiges themselves, and completing the moult of the tertiaries earlier, are protective. Fully grown upper greater coverts protect the sensitive areas at the base of the growing wing quills; the tertiaries protect the rest of the wing quills in the folded wing.

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7. MORE CUCKOO PROBLEMS

In the nineteen-thirties the *Journal of the Bombay Natural History Society* had devoted a number of pages to "cuckoo problems" concerning the parasitic habits of this bird. The present note is intended to call attention to another "problem": the winter quarters of some cuckoos, especially the Common Cuckoo *Cuculus canorus*. It seems to be an accepted fact that some of the Cuckoo populations spend the winter in India. I have come to doubt this fact after checking the Indian literature and finding that we possess too few records between October and March to accept the assumption that India is a wintering ground for the Cuckoo; these records are: North Kanara, November and February (Davidson, *JBNHS* 12:51), Trivandrum, February (Ferguson, *ibid.* 15:664), Maldive Islands, January (Philipps, *ibid.* 60:579) and Andaman Islands, November. (Hume, *Stray Feathers* 4:288). The two known records from Sri Lanka are from October (one) and undated (one). The November records may well pertain to belated migrants. Vaurie (*THE BIRDS OF THE PALAEARCTIC FAUNA, Non-Passeriformes* 1965, p. 569) writes that the Cuckoo "winters in Africa... in small numbers in India, and in smaller numbers in the Indochinese

countries." Even if we account for the fact that the cuckoo is unobtrusive and silent in winter, it would be very surprising that such an abundant, widespread and highly migratory species in the Palaearctic would pass almost un-noticed in southeast Asia. I therefore suspect that the main winter ground of the species including the Asiatic population is in Africa. It is the opinion of Moreau (THE PALAEARCTIC-AFRICAN BIRD MIGRATION SYSTEMS, 1972, p. 183) that probably a large proportion of the Asiatic birds winter in Africa. Unfortunately, the two subspecies presently recognized besides the nominate race are so poorly differentiated as to be of no value in determining the provenance of African winter guests.

Although it is usually stated that *Cuculus canorus* winters in southeastern Asia, it should be noticed that data for December to February are almost entirely lacking for the whole area. The winter status of this species for southeastern Asia including the Philippines, should probably better be changed to "straggler".

The Cuckoo appears to be abundant on passage in central India in September and October (Butler, *Stray Feathers* 5:227, Barnes, *JBNHS* 4:18, and others). Indeed the pattern of autumn migration in India is somewhat similar to that of the Redfooted Falcon *Falco vespertinus* which is known to winter in Africa. Whistler was similarly impressed by the lack of winter data for the Pied Crested Cuckoo *Clamator jacobinus* and also brought to attention the possibility that it might spend the winter in Africa (*JBNHS* 33:136-145 and 37:523). See also Wells, D. R., *JBNHS* 69:179-185, for an amendment to the winter range of both *Cuculus saturatus* and *C. poliocephalus* given by Ali and Ripley in the HANDBOOK OF THE BIRDS OF INDIA AND PAKISTAN vol. 3, 1969. The winter range of *C. canorus* will also have to be amended there.

Concerning the Emerald Cuckoo *Chalcites maculatus*, I have not found any definite winter records from India. Most observers in the Himalayan foothills refer to it as a summer visitor. In Assam, Hume (*Stray Feathers* 11:75) found it only in summer. The species is known to winter in the Malay peninsula and in southern Thailand but is a summer visitor in northern Thailand. In winter it reaches Sumatra and, probably at this season only, the Andaman and Nicobar Islands. The winter status of the Violet Cuckoo *Chalcites xanthorhynchus* in India is quite unknown.

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